Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-13. (Cancelled)

14. (Currently amended) A capillary tube, free of a covalent coating and filled with an electrophoresis separation medium comprising gel matrix of at least one random, linear copolymer comprising a primary comonomer and at least one secondary comonomer, wherein the comonomers are randomly distributed along the copolymer chain[[,]]; wherein

the primary comonomer is acrylamide[[,]]; and

the at least one secondary comonomer comprises one from the group consisting of vinyl monomers, monomers of acrylamide derivatives, monomers of acryloyl derivatives, monomers of acrylic acid d erivatives, monomers of polyoxides, monomers of polysilanes, monomers of polyethers, monomers of derivatized polyethylene glycols, monomers of cellulose compounds, or mixtures thereof, each having between 2-24 carbon atoms.

15. (Original) The capillary tube of claim 14, wherein the primary comonomer is acrylamide and the at least one secondary comonomer is dimethylacrylamide.

16-19. (Cancelled)

20. (Currently amended) A method of separating a mixture of biological molecules within an electrophoretic separation medium comprising:

a) ~~placing~~ introducing into a ~~support~~ capillary tube, free of a covalent coating and a gel matrix of at least one random, linear copolymer comprising a primary comonomer and at least one secondary comonomer, wherein the comonomers are randomly distributed along the copolymer chain[[,]]; wherein

the primary comonomer is acrylamide[[,]]; and

the at least one secondary comonomer comprises one from the group consisting of vinyl monomers, monomers of acrylamide derivatives, monomers of acryloyl derivatives, monomers of acrylic acid derivatives, monomers of polyoxides, monomers of polysilanes, monomers of polyethers, monomers of derivatized polyethylene glycols, monomers of cellulose compounds, or mixtures thereof, each having between 2-24 carbon atoms[[.]];

b) adding the mixture of biological molecules to the electrophoretic separation medium at one end of the ~~support~~ capillary tube; and

c) applying an electric field to the medium in an amount sufficient to facilitate the migration and separation of the biological molecules.

21. (Original) The method according to claim 20, wherein the primary comonomer is acrylamide and the at least one secondary comonomer is dimethylacrylamide.

22-25. (Cancelled)

26. (Currently amended) [[An]] A capillary tube, free of a covalent coating and filled with an electrophoresis separation medium comprising a gel matrix of at least one random, linear copolymer comprising a primary comonomer and at least one secondary comonomer, wherein the comonomers are randomly distributed along the copolymer chain[[,]]; and wherein

the primary comonomer is one from the group consisting of acrylamide, N-methylacrylamide, and N-ethylacrylamide; and

the at least one secondary comonomer is dimethylacrylamide.

27. (Currently amended) [[An]] A capillary tube, free of a covalent coating and filled with an electrophoresis separation medium comprising a gel matrix of at least one random, linear copolymer comprising a primary comonomer and at least one secondary comonomer, wherein the comonomers are randomly distributed along the copolymer chain[[,]]; and wherein

the primary comonomer is one from the group consisting of acrylamide and acrylamide

derivatives other than dimethylacrylamide; and

the at least one secondary comonomer is dimethylacrylamide.

28. (New) The capillary tube of claim 14, wherein said at least one secondary comonomer imparts one or more of hydrophilicity, hydrophobicity, copolymer chain backbone stiffness, self coating properties, stability of copolymer entanglement structure, resistance to hydrolysis, processivity of copolymer chain extension, gel matrix viscosity, affinity of the copolymer to the surface of a supporting substrate, or chirality.

29. (New) The capillary tube of claim 14, wherein said at least one secondary comonomer imparts self coating properties.

30. (New) The capillary tube of claim 14, wherein the capillary tube, is uncoated.

31. (New) The capillary tube of claim 14, further comprising poly(vinylpyrrolidone).

32. (New) The capillary tube of claim 14, wherein the capillary tube is a capillary tube of an array of capillary tubes, each capillary tube of the array of capillary tubes comprising the copolymer.

33. (New) The array of capillary tubes of claim 32, wherein the array consists of 16-96 capillary tubes.

34. (New) The capillary tube of claim 26, further comprising poly(vinylpyrrolidone).

35. (New) The capillary tube of claim 27, further comprising poly(vinylpyrrolidone).

36. (New) An electrophoresis method, comprising:

filling a capillary tube, the capillary tube being free of a covalent coating, with a first amount of copolymer, the copolymer being a linear copolymer comprising a primary comonomer

and at least one secondary comonomer, wherein the comonomers are randomly distributed along the copolymer chain; wherein

the primary comonomer is acrylamide; and

the at least one secondary comonomer comprises one from the group consisting of vinyl monomers, monomers of acrylamide derivatives, monomers of acryloyl derivatives, monomers of acrylic acid derivatives, monomers of polyoxides, monomers of polysilanes, monomers of polyethers, monomers of derivatized polyethylene glycols, monomers of cellulose compounds, or mixtures thereof, each having between 2-24 carbon atoms;

subjecting a first plurality of biological molecules to electrophoresis within the first amount of copolymer in the capillary tube;

flushing the copolymer from the capillary tube and filling the capillary tube with a second amount of the copolymer; and

subjecting a second plurality of biological molecules to electrophoresis within the second amount of copolymer in the capillary tube.

37. (New) The method of claim 36, wherein:

the step of filling a capillary tube, the capillary tube being free of a covalent coating, with a first amount of the copolymer comprises filing each capillary tube of a plurality of capillary tubes with the copolymer;

the step of subjecting a first plurality of biological molecules to electrophoresis within the capillary tube comprises subjecting a respective first plurality of biological molecules to electrophoresis within each capillary tube;

the step of flushing the copolymer from the capillary tube and filling the capillary tube with a second amount of the copolymer comprises flushing the copolymer from each of the plurality of capillary tubes and filling each capillary tube of the plurality of capillary tubes with a second amount of the copolymer; and

the step of subjecting a second plurality of biological molecules to electrophoresis within the capillary tube comprises subjecting a respective second plurality of biological molecules to electrophoresis within each capillary tube of the plurality of capillary tubes.

38. (New) The method of claim 36, further comprising introducing poly(vinylpyrrolidone) into the capillary tube intermediate the steps of subjecting the first plurality of biological molecules to electrophoresis and the second plurality of biological molecules to electrophoresis.

39. (New) The method of claim 36, wherein the primary comonomer is acrylamide and the at least one secondary comonomer is dimethylacrylamide.

40. (New) The method of claim 36, wherein the step of filling the capillary tube with the first amount of copolymer comprises contacting an uncoated inner surface of the capillary tube with the copolymer.

41. (New) The method of claim 36, comprising subjecting the first plurality of biological molecules to electrophoresis without polymerizing the copolymer intermediate the steps of filling the capillary tube with the first amount of copolymer and subjecting the first plurality of biological molecules to electrophoresis.

42. (New) The method of claim 37, wherein the primary comonomer is acrylamide and the at least one secondary comonomer is dimethylacrylamide.

43. (New) The method of claim 37, further comprising introducing poly(vinylpyrrolidone) into each of the capillary tubes intermediate the steps of subjecting respective first plurality of biological molecules to electrophoresis and the respective second plurality of biological molecules to electrophoresis.